repair very quickly and has to be renewed, the material is liable to be stolen for firewood and the fence broken down in consequence. Such guards are, however, used largely and successfully in Bengal.

(*j*) Basket guards of somewhat the same shape have been tried in Bombay and may be economical where labour and materials are available. They have the same disadvantages of other wooden guards and in addition are generally too weak and too small in diameter to form an efficient protection.

CHAPTER IX

(2) MAINTENANCE—WATERING

Need of irrigation

1. In ordinary cases trees require irrigation for the first three years after planting out, but no absolute rule can be laid down, as much depends on the soil and climate and also on the kind of tree. The need of each locality must be determined by experience. The amount of water required varies with the season ; in the rains watering is necessary only during periods of fine weather, but then it is required at very short intervals ; in the cold weather the water lasts much longer, while from March to June constant attention is needed to save the trees from injury.

Water-supply

2. At the time of deciding on the sections of road to be planted, the question of water-supply should be considered, if there is a canal channel cutting the road and giving a constant supply of water, arrangements can usually be made for drawing most of the supply from it. If there is no canal, or only one with an intermittent supply, existing wells can be used, and if there are none, wells must be sunk at convenient distances. Where water has to be carried from a long distance, the expense of irrigation is greatly increased, and there is also greater probability of neglect on the part of the malis.

Conveyance to trees

3. Local conditions determine the cheapest method of bringing water from the source to the trees. Where the distance is not great, water can be carried in gharas, or preferably in kerosene tins, fitted so as to be slung from the shoulders. In this case it is usually necesary to give each Mali a labourer as an assistant during the times when frequent irrigation is needed. It may be more economical to employ Bhistis with Mashaks, those in ordinary use holding about 8 gallons, or bullocks with pakhals holding about 30 gallons. Where the distance is great, economy can be secured by carting the water along the road; It can be carried in barrels mounted on small country carts or in such other way as may be suitable to the locality. It is advisable to give each Mali a bamboo or other pipe about 4 feet long so that he can direct the water to the required place while standing outside the tree-guard; most kinds of guards suffer a good deal of injury from the constant entrances of the Mali.

Application of water

4. The most effective way of applying water to a tree is by means of a ghara buried in the pit. (Fig. 7 Plate III) The ghara can be filled with certainty by means of a pipe as described in the last paragraph. Where this method is not employed and water is applied to the surface of the soil it must be remembered that no trees, except a few which are always found growing by water, will stand the constant application of water to their bark. Road-side trees are frequently killed by kindness of this sort. The bark is split by the sudden change of temperature and the sap-wood rots. It is the roots which need water, not the stem. It is, therefore, well to heap up the earth round the stem and to hollow it out at a distance into circular ditch, so that, when the water is poured in, the tree stands on a small mound surrounded by water. It is better to give water in good quantity at intervals of three or more days than to give smaller supplies daily, as this causes them to send their roots deeper into the soil where the natural moisture is greater, and a more steady growth is the result. The best time for supplying water is the afternoon.

Loosening the surface soil

5. It is important to keep the surface soil for a foot distance all round the trees as loose as possible. A hard crust on the

surface is injurious to the young trees and in particular makes the soil below dry much faster than if the surface is kept loose. Where water is applied direct to the surface of the soil, the ground should be hoed with the khurpi after each watering; where gharas are used, hoeing should be done whenever the surface is getting compact.

Special measures in droughts

6. Special care is needed to secure that irrigation is adequate in seasons of drought. The responsible official must be on the alert throughout the rains, and when a break is prolonged he must take instant measures to secure that the trees are getting enough water. A year's work may often be thrown away by neglect for a very few days at this season.

CHAPTER X

(3) Maintenance—Miscellaneous

General

1. The principal operations employed to maintain young trees are those enumerated in the two preceding chapters, keeping the guards in an efficient state, and regulating the supply of moisture. There are, however, a few other points requiring attention.

Pruning

2. It has been said that it is better not to prune at all than to prune badly, and skill is required for good pruning. This pruning is required in the nursery, during the period of maintenance and during the after-life of the tree. For convenience it is dealt with in Chapter XI.

Straightening crooked trees

3. Much pruning should not be required at the road side if the trees have been carefully tended in the nursery, only the best selected for planting at the road side and only large trees planted as recommended. If small trees are planted occasionally some get a crooked start or are bent by the prevailing wind. In such cases the tree should be straightened by tying the stem to a straight stick. It is not advisable to fix this stick